with long axis horizontal. The discharges appeared sensibly stationary and lasted for some 2 or 3 seconds. Their color was white, tinted slightly mauve.—*C. P. B[utler]*.

CENTRAL OBSERVATORY OF MEXICO REMOVED.

Under date of October 5, 1916, we are informed by J. Covarrubias, chief of the Mexican Meteorological and Seismological Service, that the offices of the Central Meteorological-Magnetic Observatory have been removed from their former location in the City of México and are now in the city of Tacubaya, D. F., where they are located in the same building as that occupied by the "Direction of Geographical and Climatological Studies."

The geographical position of the Central Meteorological Observatory is now:

Height above sealevel, 2,308.5 meters (barometer cistern).

Longitude, $6^h\ 36^m\ 46.67^s$ west of Greenwich.

Latitude, 19° 24′ 17.9″ north.

CLEVELAND ABBE, 1838–1916.[1]

Professor Cleveland Abbe died about 4 a. m. on October 28, 1916. He had been in ill health since June 4, 1915, when he was stricken by a paralysis of the right side, from which he had largely recovered.[2] Since July, 1916, however, he had suffered from a malignant degeneration of a mole, which rapidly became so extensive as to prevent his resting comfortably in other than one position. The resultant irritation and great loss of sleep, together with the restricted diet imposed by the conditions of his paralysis, drained his strength. He returned from Portland, Me., where he had spent the summer of 1916, about the middle of September and in a greatly weakened condition. For a few days he enjoyed the freedom of his home, but soon retired to the room which he kept until the end. Mentally but little change was observable, and even on the afternoon of October 25 he dictated a letter to the Secretary of the Smithsonian concerning the details of publication of a paper on meteors.

Professor Abbe had not taken an active part in the Weather Bureau's work since June 4, 1915, being on leave or on furlough from that time until he resigned on August 3, 1916.

His death will awaken a keen sense of personal loss in the minds of his former colaborers. Professor Abbe was not only a tireless and prolific worker in behalf of the science and the public institution to which he dedicated the best years of his life, but he was also, in a very unusual degree, endowed with the faculty of communicating his enthusiasm to others and stimulating their efforts, a faculty that made itself felt both in personal intercourse and through his writings.

Born in New York City in 1838, he was graduated from the Free Academy (now the College of the City of New York) in 1857, and studied astronomy with F. Brünnow at Ann Arbor, 1858–60, and with B. A. Gould at Cambridge, 1860–64. From Cambridge he went to Russia, where he spent two years as a student and assistant at the Observatory of Pulkova, under the distinguished astronomer Otto Struve. On returning to the United States he was connected for a short time with the Naval Observatory, and was called thence to the directorship of the Cincinnati Observatory.

Professor Abbe's work at Cincinnati will always remain a landmark in the history of meteorology, as it was here that he organized, in 1869, with the assistance of the Cincinnati Chamber of Commerce and the Western Union Telegraph Company, a system of telegraphic weather reports, daily weather maps, and weather forecasts, the first regular undertaking of this kind in America and the prototype of the weather service now maintained by the Federal Government. Indeed, the object lesson afforded by Professor Abbe's undertaking was the strongest argument in behalf of the establishment of a national weather service in connection with the Signal Corps of the Army, a project urged upon Congress by Dr. I. A. Lapham and others and put into effect in the year 1870.

In January, 1871, Professor Abbe was appointed a civilian assistant in the office of the Chief Signal Officer, where he organized the forecast work and began preparing the tri-daily synopses and "probabilities" of the weather. In the same year he began and urged the collection of lines of leveling and in 1872, by laborious analysis, deduced the altitudes of the Signal Service barometers above sealevel. In 1873 he inaugurated the MONTHLY WEATHER REVIEW, and he prepared 22 of the first 60 numbers of this publication, which was then only a brief bulletin of current weather statistics. September 1, 1893, he was appointed editor of an enlarged publication bearing the same title, and under his direction it soon became one of the leading meteorological journals of the world.

It was largely owing to Professor Abbe's advice that General Myer, the Chief Signal Officer, sought the cooperation of foreign governments and of the International Meteorological Congress of 1873 in establishing the "Daily Bulletin of Simultaneous International Meteorological Observations," and Professor Abbe took a leading part in organizing this remarkable enterprise. World-wide systems of observations continued to be one of the chief objects of his interest and advocacy throughout his career. He was also specially instrumental in the organization of the State weather services, the predecessors of the present climatological service of the Weather Bureau.

Professor Abbe never ceased to urge the importance of meteorological research, and he organized a branch of the central office, known at first informally and later officially as the "study room," in which many fruitful investigations were carried out. He himself set the example in this field of activity. He collected on cards about 11,000 titles of papers on meteorological and allied subjects at considerable expenditure of private means and personal effort. This collection was purchased in 1881 by the Signal Service and further enriched by very extensive contributions from all over the world, becoming international in importance and scope. The four parts, which began to appear as mimeographed pages in 1889, have never been continued and the remaining cards lie somewhat neglected in their dusty drawers in the Bureau library. This bibliography was classified to be of help to the workers in the "study room" and has proved invaluable, as far as available, to many others also.

He prepared for publication as supplements to annual reports of the Chief Signal Officer a "Treatise on Meteorological Apparatus and Methods" (1887) and "Preparatory Studies for Deductive Methods in Storm and Weather Prediction" (1889), and he laid English-speaking meteorologists throughout the world under a special obligation by collecting and translating the leading contributions to the subject of dynamic meteorology (pub-

[1] A longer notice of Professor Abbe's work will appear in a later issue of the REVIEW.

[2] See MONTHLY WEATHER REVIEW, October, 1915, 43:507.

lished by the Smithsonian Institution, 1877, 1891, and 1910). He also compiled a very comprehensive digest on the relations between climate and crops (published in part as Weather Bureau Bulletin 36). These notable works represent, however, only a small part of his scientific and literary activity. He was a voluminous contributor to scientific journals and books of reference, as well as to official publications. His scientific achievements were summarized by the president of the Royal Meteorological Society, when the Symons Memorial Gold Medal of that society was conferred on him in 1912, in the statement that he "has contributed to instrumental, statistical, dynamical, and thermodynamical meteorology, and forecasting," and "has, moreover, played throughout the part not only of an active contributor but also of a leader who drew others into the battle and pointed out the paths along which attacks might be successful."

Professor Abbe was one of the leading promoters of the introduction of standard time in this country, and was chairman of a committee of the American Metrological Society which urged this reform until it was finally adopted.

Thus passes an enthusiastic promoter of international good will; a devoted son of Science who appreciated and rejoiced in all advances in any of her many fields; a meteorologist of broad and deep scholarship, whose enthusiasm was an inspiration and encouragement to all about him and whose zeal did not flag in the very hour of death; a patriot whose lifelong service to the welfare of his country fully deserved the unusual courtesy shown by the half-masted flags on the Department of Agriculture and the Weather Bureau on the day he was laid to rest.

HENRIK MOHN, 1835-1916.

Henrik Mohn, the first professor of meteorology in the University of Christiania and director of the Norwegian Meteorological Institute from the time he founded it as an adjunct to the university in 1866 until he retired on September 1, 1913, died at the age of 81 on September 12, 1916.

Professor Mohn won the deserved and generous gratitude of the Norse fishermen by the establishment of the meteorological institute, which was made an independent Government institution in 1909. Before 1867 many hundred fishermen and their boats were lost almost yearly in storms that their experience was unable to foretell; to-day such losses are much rarer. He increased the efficiency of his meteorological service by also securing the cooperation of the captains of Norwegian fishermen in the Arctic as observers, an arctic weather service which culminated in the great international circumpolar cooperation of 1882–1883 which he brought about. Mohn himself led the Norwegian Arctic expedition of that campaign.

Professor Mohn was appointed a member of the International Meteorological Committee in 1873, and attended the first congress of official delegates which met in September of that year at Vienna. His subsequent regular attendance thus gave him a unique experience of international meteorological meetings.

Many contributions to meteorological science came from the hand of Professor Mohn. One of his earlier and more important works was written in collaboration with C. M. Guldberg in two parts, published in 1876 and 1880, treating of the Movements of the Atmosphere (Hvirvel Centrernes Theori). This was revised by the authors in 1883, and placed before American students in Professor Cleveland Abbe's third collection of translations called Mechanics of the Earth's Atmosphere (Washington, 1910). A text on the Elements of Meteorology reached a 5th edition in 1898 (Berlin) and was translated into many languages. His continued interest in circumpolar meteorological problems bore fruit more recently in the elaborate study to which he subjected the observations taken on board the *Fram*, 1893–1896. (See this REVIEW for September, 1905, **33**:401–2); and his discussion of the "Meteorology" of the scientific results of Amundsen's expedition to the South Pole (Kristiania, 1915).

An excellent portrait of Professor Mohn appeared as frontispiece to the "Geographen-Kalender, 11. Jahrgang, 1913," published by Justus Perthes (Gotha).—C. A., jr.